	Application No.	Applicant(s)
Notice of Allowability	10/696,897	LEE ET AL.
	Examiner	Art Unit	
	Esaw T. Abraham	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amdts filed 07/31/06*.

2. ☒ The allowed claim(s) is/are *1-10*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

GUY LAMARRE
PRIMARY EXAMINER

DETAILED ACTION

Examiner's statement for reason for allowance

1.   Claims **1-10** have been allowed.

The following is an examiner's statement for allowance:

As per claim 1:

The prior art of record, Richardson et al. (U.S. PN: 6,938,196) teach methods

and apparatus for performing decoding operations that are used in conjunction with

message passing decoding techniques and techniques and the techniques are suited

for use with LDPC codes (see col. 1, lines 15-18) and to facilitate hardware

implementation of an LDPC decoder, log-likelihood values are quantized to integer

multiples of ½ ln2 and further Circuitry for generating quantized log-likelihood values,

e.g., ratios, from received values may be incorporated directly into a receiver which

forms part of the communications channel 356 that precedes the message passing

decoder (see figure 6 element 600) (see col. 6, lines 25-65 and col. 11, lines 43-58).

Further, Richardson et al. teach means for generating log-likelihood values quantized to

integer multiples of 1/2 ln 2 to produce quantized log-likelihood values coupled to a

parity check decoder, for performing parity check decoding operations using said

quantized log-likelihood values as input values (see claim 20) and furthermore the said

parity check decoder includes variable node processing circuitry for performing a

variable node processing operation using at least some of said produced quantized log-

likelihood values; and check node processing circuitry (check node function unit) for

performing a check node processing operation on quantized log-likelihood values produced by variable node processing (bit node function unit) (see claims 20 and 21). However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious message-passing decoder for low-density parity-check (LDPC) codes, which is for decoding block codes encoded with LDPC codes by a message-passing decoding algorithm, the message-passing decoder comprising: a log likelihood ratio calculator for receiving a code word having a consecutive value from block codes encoded with the LDPC codes, and calculating a log likelihood ratio; a bit node function unit for calculating a bit message using the log likelihood ratio calculated by the log likelihood ratio calculator and an input parity-check message; a check node function unit for calculating the parity-check message using the bit message calculated by the bit node function unit, and outputting the calculated parity-check message to the bit node function unit; and a parity checker for receiving a code word decoded by the bit node function unit from the final parity-check message calculated by a repeated decoding of the bit node function unit and the check node function unit, and checking a parity, wherein the parity-check message corresponding to a logic function output for an input from the bit node function unit is calculated according to a linear approximation function determined for each divided interval of the logic function. Consequently, claim 1 is allowed over the prior art.

Claims **2-10,** which is/are directly or indirectly dependent/s of claim 1 is also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2.   Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned (571) 273-8300.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art unit: 2133

GUY LAMARRE
PRIMARY EXAMINER